DATE: March 10, 2005

TO: Interested Parties

FROM: Steve Munro, Compliance Project Manager

SUBJECT: Metcalf Energy Center Project (99-AFC-3C)
Staff Response to Comments Regarding Staff Analysis of Proposed Modifications To Air Quality Requirements and Conditions of Certification Concerning Commissioning, Startups, Shutdowns, Gas Turbine Tuning and Other Changes

Enclosed is the Energy Commission Staff Response to the questions and comments regarding the Staff Analysis, which was issued on February 9, 2005. The Staff Analysis contains an assessment and recommendations relating to a petition from Metcalf Energy Center, LLC (MEC, LLC) to amend the Metcalf Energy Center (MEC) Decision by changing air quality requirements and conditions of certification concerning commissioning, startups, shutdowns, gas turbine tuning and other aspects of the Metcalf Energy Center (MEC) Project.

The enclosed Staff Response addresses questions and comments from the public workshop on February 23, 2005 and written comments that were received on March 2, 2005.

An addendum with minor clarifications to the Staff Analysis issued on February 9, 2005, is also enclosed. There will be a final opportunity for public input at the Energy Commission Business Meeting scheduled on March 16, 2005.

Enclosures

CALIFORNIA ENERGY COMMISSION

Staff Response to Public Comments Regarding Metcalf Energy Center Project Air Quality Commissioning, Startup, Shutdown and Turbine Tuning Amendment Petition March 10. 2005

Public Comment Topic Responses

Topic responses address questions and comments made by more than one commenter and are referred to later in this document when those comments are addressed.

Topic 1 - Modeling Analysis Conservatism

Questions were asked regarding the fact that the modeling results showed impacts at a very high percentage of the ambient air quality standards and how staff could be sure that these impacts would not exceed these standards. The fact is that the modeling analysis performed was very conservative, so staff is assured that the project impacts for the revised emission limits will not cause any new exceedences. The following conservative methods create very conservative modeling results:

a) Dispersion Model

Modeling analyses of local impacts, which in lieu of specific regulatory requirements, tend to follow the following model selection rigor:

Least Rigorous Approach	**Source/Location Attributes**	**Model and Met Data Selection**
	Simple Source and Topography	SCREEN3 model
		ISTST3 model with screening meteorology
		ISTST3 model with local meteorology (**Metcalf level used**)
	Complex Source and Topography	ISCST3 model
		CTDMPLUS or RTDM model to address complex terrain
		AERMOD model
Most Rigorous Approach		CALPUFF model

The modeling rigor is generally dictated by two factors, cost and impact determination. The modeling rigor only goes as far as necessary to show no significant project impacts. More rigorous and expensive modeling would show much lower impacts. Regulatory requirement can require certain baseline levels of rigor to be used in the modeling analysis for specific applications, such as ISCST3 and the use of actual meteorological data for the determination of local impacts for large projects, CALPUFF for the determination of long range Class 1 Area visibility impacts for projects that trigger this PSD requirement, and SCREEN3 for the determination of maximum fumigation condition impacts for large projects. However, additional rigor can be applied if necessary, particularly to best match the model used to the location and conditions modeled. For Metcalf's revised short-term emission limit request the ISCST3 model

was used, but this model is not the best model for use in complex terrain. Regardless the use of this overly conservative model showed impacts less than the ambient air quality standards.

ISCST3 is a very conservative model to use in locations with complex terrain (i.e. terrain above the top of the stack). ISCST3 uses very simple assumptions when evaluating complex terrain (i.e. no terrain following calculations), and these assumptions cause significant overprediction of short-term impacts, particularly during stable low wind speed conditions (which happen to be the conditions which cause the maximum modeled project impacts for Metcalf). The use of a model with a more sophisticated modeling approach for complex terrain, such as AERMOD, would provide much lower modeled maximum impacts. The AERMOD evaluation report (USEPA 1998) showed the following results of the ratio of modeled values versus actual observed values for the complex terrain evaluation examples:

Complex Terrain Modeling Site	**AERMOD/Observed 3-hour[1]**	**ISCST3/Observed 3-hour[1]**
Martin's Creek	1.06	7.25
Lovett	1.00	8.20
Westvaco	1.08	8.50

Source: USEPA 1998

1 – A 1-hour modeling result comparison was not presented so the shortest period presented is shown. The Robust Highest Concentration (RHC) is the value being presented. The RHC is a statistical estimator for the highest concentration. It is determined from a tail exponential fit to the high end of the frequency distribution of observed and predicted values. The number of points used for the fit is arbitrary, but usually ranges between 10 and 25.

The reason for this gross overprediction is that ISCST3 does not perform any air flow simulations around the elevated terrain, so impacts are determined as though wind would remain at its given height and impact the terrain directly (i.e. go right through the hill rather than above and/or around the hill). Models such as CTDM, AERMOD, and CALPUFF perform calculations to determine more reasonable airflow patterns that occur when air goes over and around elevated terrain. Therefore, if these other models were used the maximum impacts would have been estimated to be lower than those estimated by ISCST3. Regardless, as previously noted, the use of this overly conservative model still showed impacts less than the ambient air quality standards, so additional more rigorous modeling was not found to be necessary.

It should also be noted that CEC staff has reviewed cases where more sophisticated modeling approaches were required to show compliance with ambient air quality standards. For example, the applicant in the Palomar case used AERMOD to address elevated terrain impacts during its high emission short-term events (i.e. commissioning and startup); and used a revised version of the NOx-OLM model that matched actual hourly NO_2 background with actual modeled NO_2 impacts for the same hour rather than adding modeled impacts to a single worst-case hourly background. If these models were used for Metcalf the modeled CO impacts would be significantly lower than shown and the modeled NO_2 impacts would also be lower than shown.

b) Emissions Modeled

The emissions modeled assumed the entire event emissions occurred in the most limiting timeframe for each ambient air quality standard. This maximizes the potential

impact. The expected maximum hourly and eight hour emissions should be below the amounts modeled. This provides another level of conservatism that alone may overestimate impacts by 10 to 50 percent.

c) Background Modeled

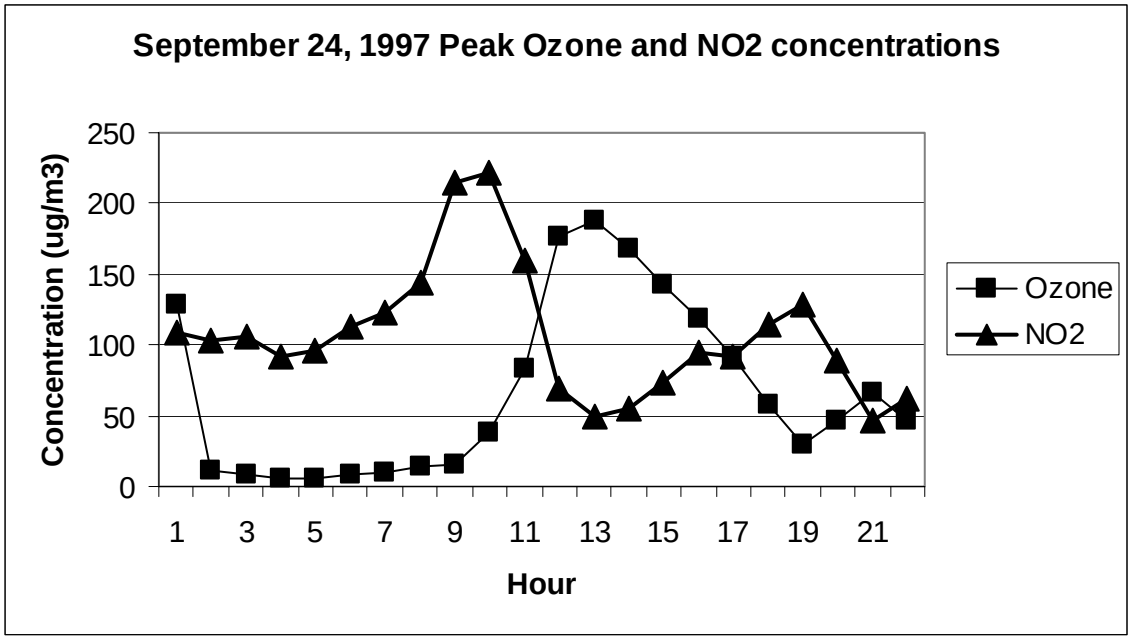
The background concentrations used are conservative for several reasons including:

1. The background concentrations for CO from Central San Jose will overestimate the background at the maximum impact location in elevated terrain.

2. The maximum background concentrations, including the ozone concentrations used to determine the maximum NO_2 concentrations, and maximum modeling results would not occur at the same time. Ozone and NO_2 compete in the following simplified reversible reaction:

$$NO_2 + O_2 \Leftrightarrow NO + O_3$$

Energy from sunlight is required to drive this reaction to form ozone, while NO_2 is formed from the oxidation of NO by ozone. When there is sufficient energy (i.e. strong daylight sun) the reaction forms ozone, and when not, the reaction is reversed. An example of a worst-case NO_2 and ozone concentration day (September 24, 1997) provides an illustration of how this reaction affects peak ozone and NO_2 pollutant concentrations.



This particularly day was selected to be presented because it is the only time in recent history where the annual peak 1-hour ozone and annual peak 1-hour NO_2 concentration actually occurred on the same day. As can be seen, the peak ozone and peak NO_2 concentrations do not occur at the same time, and it also clearly shows the competing nature of the formation reaction of both. Ongoing

emissions, dispersion, and other competing reactions also play a role in the concentrations of both pollutants.

For Metcalf, a specific example of the modeling conservatism would be comparing the modeling results, which used 1993 meteorological and background ozone data in the modeling analysis, to the actual 1993 NO_2 background measured during the peak modeled impact hours. The peak modeled 1-hour commissioning and cold startup impacts occurred during the meteorological conditions that occurred on April 25th hour 6 and August 14th hour 15, respectively. The actual background NO_2 concentrations for those hours in 1993 were 38 ug/m^3 and 19 ug/m^3, respectively, versus the worst-case 1-hour background of 214 ug/m^3 that staff used in the modeling analysis. This demonstrates how conservative it is to add the modeling results to a worst-case background, rather than an actual background concentration.

3. The ozone concentrations used in the NOx-OLM modeling, which is from 1993, appears to be somewhat higher than current ozone concentrations based on a comparison with San Jose and Gilroy station ozone data.

4. Staff traditionally only goes back three years to establish background concentrations for use in the modeling analysis. Staff agreed with the applicant's approach to use 2000 to 2003 for both NOx and CO even though the rationale for not including 2002 data for CO was in staff's opinion flawed. The San Jose 4th street monitoring station was closed on April 30, 2002 and re-opened at its current San Jose Central (Jackson Street) location on October 5, 2002. This means that the CO season was actually covered for 2002, and BAAQMD includes the CO data as valid for 2002 in its annual summaries. If staff had only used 2001 to 2003 CO data the background concentrations, which are currently based on year 2000 maximums, the background concentrations used would have dropped as follows:

Ambient CO Concentrations – ug/m3 (ppm)

	2000 Max	**2001-2003 Max**
CO – 1 Hour	11,125 (10)	8,867 (7.6)
CO – 8 Hour	7,811 (7.03)	5,942 (5.1)

It should also be noted that staff used the data source that provided the highest background concentration. For example, using the BAAQMD annual emission summaries for 2000 to 2003 the maximum 1-hour and 8-hour background concentrations would have been lower than the CARB source data used.

So, it can be seen that the addition of the worst case background and the worst-case modeling results is essentially like adding too many apples to too many oranges and results in a significant level of conservatism.

Summary

1. The maximum project impacts could be overestimated by a factor of five or greater by the ISCST3 model alone without considering the other conservative factors used in the analysis.
2. The addition of worst case maximum modeling results and worst case maximum background concentrations from Central San Jose will overpredict the worst case combination of impacts and background in the area with maximum project impacts.
3. The emissions quantities modeled were maximized.
4. Therefore, even with the assessment showing maximum impacts very near the ambient air quality standards staff's experience and knowledge of the modeling methods and procedures used allows us to clearly state that the results are very conservative and that the revised short-term emission limits will not cause violations of the ambient air quality standards.

Topic 2 - Acute Health Impacts

Comments were received that the proposed amendments would increase the potential acute health risks and particularly those impacts from acrolein.

A) Acrolein

The original MEC staff assessment contained a quantitative acute health risk analysis for steady state operation of turbines at full load or near full load conditions that included acrolein health impacts. Since that time, however, the Air Resources Board has recommended against using acrolein emission factors from the California Air Toxic Emission Factors Database until issues with the sampling method used to derive those factors are resolved (CARB 2005). Further, the emission factors in question derive from turbines tested at steady state conditions. Testing under transient conditions, such as when turbines are in startup mode, is extremely difficult, and staff is unaware of any such emission factors. Therefore, at this time staff can only qualitatively address the potential health risks from acrolein emissions during turbine startups. Staff does not believe that adding a requirement for air toxics source testing during startups would provide any benefit as such tests are likely not technically feasible, and even if technically feasible the results under such variable load conditions would probably not be reliable.

The acute health impact of concern for acrolein is mild eye irritation (OEHHA 1999). This is the health effect that drives the formulation of the acute reference exposure level. The reference exposure level (REL - level deemed to be safe for all people) is based on a study of people who were exposed to acrolein for five minutes. The final REL, determined by the State of California Office of Environmental Health Hazard Assessment (OEHHA), is based on an extrapolation to a one hour exposure and includes other uncertainty factors, so that the final level is 720 times lower than the study results showing the lowest level of reported eye irritation. Therefore, this REL provides a very conservative estimate for the potential for the occurrence of mild eye irritation.

b) Acute Impacts

As the staff amendment modeling analysis indicates, the worst-case short term impacts (based on CO) occur in elevated terrain, from approximately 400 feet above the base facility elevation at night under stable low wind speed conditions. The maximum predicted impacts found at elevations less than 50 feet higher than the elevation of the project site were less than one-quarter of the impacts predicted at the higher elevations for CO. The impacts within the more densely populated areas north of the project site would be less than 1/10th of the impacts found in the elevated terrain to the northeast of the project site.

As the staff analysis also states, the assumptions used in the modeling analysis are considerably conservative, including the use of a model that does not adequately address elevated terrain, the use of worst-case meteorology conditions and worst-case emissions. Further, the commissioning period will only occur for a limited time, and the cold startup emissions will only occur for a maximum of 60 hours per year which will limit the likelihood of the coincidence of worst case meteorological conditions and worst-case emissions. Thus, it is highly unlikely that a combination of circumstances could occur that would result in a significant acute health impact, including someone being exposed to acrolein at a level high enough over a sustained one hour period to result in mild eye irritation.

The comments received also address original testimony provided by Steve Radis regarding the health risk analysis. While staff at that time disagreed and still disagrees with many of the substantive assumptions used in Mr. Radis' analyses and his conclusions regarding the total acute health risk, we would like to note that Mr. Radis identified two mitigation measures that could be used to lower these impacts: 1) adding a CO oxidation catalyst and 2) limiting startups. Staff would like to point out that the project will have a CO oxidation catalyst and will be limiting the number of cold startups/tuning events to no more than 30 hours/turbine/year. Therefore, staff believes that appropriate air toxics mitigation has been applied to the project.

Summary

1. The project already employs Best Available Control Technology for toxics, namely a CO catalyst.
2. The project's acute health impacts in populated areas are clearly insignificant.
3. The project's potential for significant health impacts to the unpopulated elevated terrain areas of maximum project impact are mitigated by the CO catalyst, and the maximum modeled acute impacts occur at night when recreational users (i.e. riders at Motorcycle Park) are not present.
4. The project's maximum acute health impacts were overestimated by the use of a non-terrain adjusting dispersion model (see Topic 1 discussion).

Topic 3 - Metcalf Area Monitoring Facility/Background Concentration Basis

Comments have been made that staff should be using the background data from the Metcalf area monitoring station (located in Los Paseos Park) that has recently begun operation (November 2004). Comments also stated that staff should not have changed

the background concentrations from those originally analyzed in 2000, where the analysis included background data through the year 1998. Staff's response is as follows:

a) Monitoring Station Selection – Regulatory Basis

While staff is willing to review the data from the Metcalf area monitoring station, and has provided a general review of that data (see subsection "c" of this topic discussion) and the available data from all of the BAAQMD monitoring stations, staff must point out that the Metcalf station does not currently meet EPA siting requirements and therefore is not a valid station to be used for regulatory purposes, such as establishing background concentrations. The station is also not operated by a regulatory body or certified by a regulatory body, so the data has not been properly validated. Therefore, this monitoring station is not currently a proper data source for regulatory purposes.

Additionally, staff is certain that the background monitoring location selected to provide the worst case CO and NO_2 background concentrations overestimates the background concentrations that would occur in the location and during the time of day and ambient conditions required to create the maximum modeled project impacts (i.e. undeveloped elevated terrain to the northeast of the project site during nighttime stable mixing low wind speed conditions).

b) Background Years Selected

Staff's selection of the appropriate background data has considered location and has included the past four years of available data (2000 to 2003). Staff traditionally uses the three most recent complete years of ambient monitoring data to establish current background concentrations for use in each separate modeling analysis. Background data changes over time and it is staff's methodology to use the most recent complete data available at the time of each air analysis in order to use the most representative data available at the time of each air quality analysis. In layman's terms…current background air quality is what it is now, not what it was years ago.

Staff would not suppose that comments opposed to this approach would have been made if the background concentrations would have increased since the original staff analysis for this project. While the time period of available ambient data has only changed five years this methodology can clearly be seen to be the logical approach as it would certainly be irrational not to update the background data for a case first analyzed by the CEC in 1985 and also irrational not to analyze all cases with a consistent approach.

Analytical methods, data, regulatory requirements all change over time and staff must use the best available information at the time of each analysis to support our findings and conclusions.

c) Metcalf Area Monitoring Station Data Review

Staff's review has found a total of six hours of CO hourly data that is reported to be higher than the background value used in staff's impact analysis, and one hour of NO_2

data that is reported to be higher than the background value used in staff's impact analysis. Staff's review indicates that all of these hours of data are unreliable. Staff has identified the following problems with these specific hours of data and with the station data in general that indicates that the station data collected to date is likely not reliable.

General Station Issues

1) There are large contiguous blocks of data with nearly identical results for CO, which may indicate a zero malfunction.
2) There are severe spikes in hourly results that were not found at any other monitoring station within the BAAQMD monitoring network for the period monitored. Neither in level or in the extreme level of increase and decrease in pollutant concentration from one hour to the next.

Specific CO and NOx Issues

1) The CO results are presented only to the integer ppm value, so the quality of the data presented is not comparable to that presented on the BAAQMD website, which provides data to tenths of a ppm.
2) The increase and decrease in the values presented from hour to hour are extreme, much higher than at any of the other properly sited monitoring stations. For example the CO concentration on January 5th is noted to be zero all day until 2-3 pm when it is 17 ppm and 3-4 ppm when it is at 15 ppm then is again zero for the rest of the day. This trend is repeated for all of the CO concentrations listed above the background concentration staff used in it's analysis.
3) The change in the NO_2 values around the single hour with the NO_2 level higher than the background used (175 ppm) again increases from 25 the hour previous and decreases back to 45 the hour after and the NO_2/NOx ratio changes radically unlike anything observed through the review of the other BAAQMD monitoring station data or staff's experience with other monitoring data.

A visual comparison of the hourly CO values monitored at the Central San Jose (SJ) station vs. the Metcalf area (Met) station for January 5th is shown below:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
SJ	0.7	0.7	0.6	nd	0.6	0.6	0.7	0.9	1	0.9	0.7	0.6	0.6	0.7	0.7	0.6	0.7	0.8	0.9	1.2	1.4	1.7	1.6	1.5
Met	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	15	0	0	0	0	0	0	0	0

nd – no data

This comparison makes it plainly obvious that there is something wrong with the Metcalf monitoring data, or at least the peak levels that have presented for hours 15 and 16. A similar comparison would show the same problem for each period that the Metcalf data presents data higher than the background concentrations used by staff.

At the time of this comment response preparation Mr. Dick Dukar of the BAAQMD had reviewed the station data for the month of January and indicated that there appears to be many problems with the data and that the data has not been properly QA/QC'd and is not of sufficient quality to have been provided to the public. He agreed that the particularly high ambient CO results on January 5th were clearly unreliable and in his opinion were likely hours that included quality control checks and that those hours should have been discarded.

Overall, the data has irrational increases and decreases in pollutant concentrations and does not appear to be reliable. Staff cannot determine whether the station is sited in a location that creates these unrepresentative concentrations results or whether the data itself is for one reason or another incorrect. However, staff has concluded that the data as presented from this monitoring station is inaccurate, is almost certainly not representative of the area as a whole, and most certainly is not representative of the locations in elevated terrain shown to have the maximum modeled project impacts.

Summary

1. Staff appropriately used current ambient air quality data to determine appropriate current background concentrations.
2. The Central San Jose monitoring station is the most appropriate station for the determination of background concentrations and will provide for a conservative background.
3. The Metcalf area monitoring station is not in an approved location, does not meet other regulatory requirements, and cannot be used to determine appropriate site background concentrations.
4. The Metcalf area monitoring data that has been provided is fatally flawed.

Topic 4 - Issues Out of Scope of the Amendment Request

The amendment is asking for revisions to certain explicit short-term emission limits and other minor procedural and editorial revisions to the conditions. Issues that are not explicitly concerned with or affected by these revisions are not part of the review or subject to reinterpretation. This applies to equally to air quality conditions not part of the amendment request or other unaffected topics such as hazardous materials, energy efficiency, or traffic and transportation. Such unaffected issues, air quality or otherwise, commented on during the staff workshop or in subsequent written comments include:

a) Visible Plumes

A comment was made that the increased short-term NOx limits may cause concentrations could cause visible plumes and that would violate the existing Conditions of Certification (namely **VIS-10**). **VIS-10** and the analysis that was conducted to support this condition was based solely on the formation of visible water vapor plumes, not NOx or particulate plumes, which are regulated by the opacity limits stipulated in BAAQMD Regulation 6. The limits for visible plume as given in **VIS-10** are not requested to be changed so this is not an issue for the amendment review.

b) Sulfur Dioxide Emission Limit

There is no dispute between the CEC and BAAQMD on the current fuel sulfur content and corresponding SO_2 emission limit. The BAAQMD conditions regarding hourly, daily and annual SO_2 emissions, and the corresponding required fuel sulfur limit have not been revised and no request to amend these limits have been made. It is true that BAAQMD added an additional sulfur content limit to BAAQMD condition 13, but staff believes that addition just provides the BAAQMD regulatory Best Available Technology (BACT) definition for the pipeline quality natural gas sulfur content limit. BAAQMD

condition 20 g. that defines the most restrictive sulfur content limit requirements are unchanged.

The original sulfur limit and SO_2 emission limit was determined by BAAQMD using local sulfur content data available at the time of the permit. Subsequently, they have modified other large power plant permits, through the Title V process, to increase the allowable short-term sulfur content of the natural gas fuel to 1.0 grain/100 SCF and annual basis of 0.25 grain/100 SCF limit. Staff will have to address this issue if and when the sulfur content limit change is requested for the Metcalf project and the permit modifications are made by BAAQMD.

c) PM10 Emission Rates

The issue regarding PM10 emission rates increasing through the addition of the CO oxidation catalyst was not related to the emission limits, but an argument relating to the negative and positive benefits of adding the catalyst. Calpine's position during the evidentiary hearings was that the incremental increase in the actual PM10 rate expected due to the catalyst and its cost outweighed the benefit of the reduction in CO emissions reduction in VOC emissions. The increase in PM10 caused by the oxidation catalyst is very small (should be less than 0.25 lbs/hour on average) and will not affect the safety margin afforded by the current PM10 emission limits. Additionally, this increase in particulate is due to the oxidation of SO_2 to sulfate/sulfite particulate, which if not oxidized by the CO catalyst prior to release would happen after release as secondary particulate formation.

Topic 5 - Commissioning Startup Conditional Limitations

A verbal comment during the workshop was made that the project should be limited to only perform the high emitting commissioning or startup activities under certain ambient conditions that would lessen the potential impacts, such as is done for agricultural burning. However, through our CEQA process we are limited to mitigating significant impacts. The analysis of the commissioning and startup activities did not find that the ultra conservative impact analysis would create exceedances in the ambient air quality standards; therefore, staff found that the commissioning and startup activities would not create significant impacts or require any additional mitigation.

Dennis Jang of BAAQMD noted during the public workshop that BAAQMD can only impose restrictions as allowed by its regulations or as necessary to meet the standards imposed by its regulations. Mr. Jang indicated that BAAQMD does not have the regulatory authority to impose this kind of restriction. BAAQMD in its analysis also did not find that the project's requested commissioning and startup emissions would cause any exceedances of the NO_2 or CO ambient air quality standards.

Topic 6 –Public Review Process

Several commenters have stated that they believe that an evidentiary hearing is required to provide the public with adequate input in the amendment process. Commission staff disagree with this assertion. Staff believes that the opportunity

provided the public for review and comment on the amendment request and the Staff Analysis is beyond the minimum requirements of either the Energy Commission regulations or CEQA.

A Notice of Receipt was mailed to the Compliance Mailing List for the project. The Staff Analysis was prepared and mailed to interested members of the public as well as agency and organization representatives on February 9, 2005. The cover letter transmitting the analysis notified the public of a public workshop, which was conducted on February 23, 2005, providing a full opportunity for public comments and questions for Energy Commission staff, BAAQMD staff, City of San Jose representatives, and MEC representatives. Conducting a workshop is not a requirement either of the Energy Commission regulations or CEQA for an amendment of this nature. In addition to the workshop, written comments were solicited and received during the public review period. Furthermore, all interested parties will have the opportunity to participate in a public hearing when the Commission considers the amendment request at the Business Meeting scheduled for March 16, 2005. Finally, all appropriate amendment documents were docketed and placed on the Energy Commission website for the widest possible availability to the public.

The Staff Analysis concludes that this amendment request does not require any additional mitigation and will not result in significant health and safety or environmental impacts, consistent with the original decision. For normal project operations, there is no change in hourly, daily or annual emission limits. The emission increases requested are limited to transitory events; which are initial commissioning of the equipment, cold startups, and shutdowns, and turbine tuning. Further, no significant impacts were identified in the Staff Analysis using ultra-conservative operating, ambient air, and meteorological assumptions. Given that the amendment request is limited in scope, and the staff conclusion clear and unambiguous, staff believes that no additional public review, beyond that already described above, is necessary or appropriate.

An additional assertion of some of the commenters is that the petitioner was given undue access to the staff's consultant who was contracted to prepare the Staff Analysis. This assertion is without basis. A public workshop was held to provide interested members of the public with access to the staff consultant and other parties such as the Air District. This public forum was the opportunity for access to staff's consultant. While individual requests to communicate with particular members of the staff or staff's consultant are considered, the public is encouraged to use the public workshop to ensure a more efficient use of state resources, and to avoid duplication of effort and confusion by members of the public.

Topic 7 – Transfer of Air Quality Analyst Responsibility

As explained at the public workshop, the Commission staff person, Joe Loyer, who was initially responsible for analyzing the amendment petition, had to take time off from work for personal reasons. Due to time and workload constraints, it was necessary to contract for the services of William Walters of Aspen Environmental Services to complete the Staff Analysis and the amendment process. Mr. Walters is very highly qualified for the work, and is familiar with the MEC Project, having worked on plume

modeling and related conditions of certification, during the AFC process. In addition, Mr. Walters has analyzed several similar amendment requests. As part of his preparation of the Staff Analysis, Mr. Walters' work was reviewed and approved by Commission staff, who provided revised and additional content.

Topic 8 – Coordination with BAAQMD

Coordination and cooperation between Commission staff and BAAQMD staff has been excellent, as evidenced by the participation of Mr. Dennis Jang in the public workshop held on February 23, 2005. It was not feasible for both the Commission and the BAAQMD process to run simultaneously. However, in this case, we expect that both processes will be completed within two weeks of each other. This is normal for the air quality amendment process. Energy Commission staff believe that the final revised BAAQMD permit will coincide with the Energy Commission's revised conditions of certification. However, if this is not the case, an additional minor amendment may be needed to achieve complete agreement between both agencies. Again, this is not unprecedented in the Energy Commission's amendment process and has not caused problems in previous amendments.

Topic 9 – Piecemealing Issue

Staff does not believe that this amendment request is indicative of piecemealing. The petitioner has obviously made an effort to include all foreseeable commissioning, startup, and shutdown issues in its petition. There have been no previous incremental amendments on these topics, which are characteristic of piecemealing.

References

OEHHA 1999. Office of Environmental Health Hazard Assessment. Determination of Acute Reference Exposure Levels for Airborne Toxicants. March.

CARB 2005. California Air Resources Board. CATEF – California Air Toxics Emission Factor Database Webpage. http://www.arb.ca.gov/ei/catef/catef.htm. Webpage last updated January 2005, and accessed March 2005.

USEPA 1998. Model Evaluation Results for AERMOD. Draft Document. http://www.epa.gov/scram001/7thconf/aermod/evalrep.pdf. December 17, 1998.

Public Comments

Please note that many of the staff's responses to the individual comments refer to topic responses provided previously, while certain specific comment responses are provided directly after the comment.

Comments from Mr. Phil Mitchell
Santa Teresa Citizen Action Group

Comment 1.

1. *Because of the importance to our community of air emissions, especially those associated with start-ups, we hereby request an evidentiary hearing be held by the CEC. Several pieces of data that have been used are controversial and we request an opportunity to question those who prepared and submitted the data and associated air analyses on behalf of the applicant (Calpine) as well as the reviewers (BAAQMD and CEC).*

Response
Please see Topic 6. response.

Comment 2.

2. *We are also concerned about the lack of coordination between the BAAQMD and the CEC. For example, why is the BAAQMD process lagging the CEC's process? Why are different data being used in the respective air impact analyses? How is CEQA equivalency being met?*

Response
Please see Topic 8. response regarding BAAQMD and CEC coordination.

The CEC uses consistent air impacts analysis methods statewide so that a consistent CEQA analysis can be performed. The local Districts on the other hand are performing their modeling for non-CEQA regulatory purposes, and not all Districts use exactly the same methodology in their air quality analysis. Staff has determined that a consistent methodology is the more appropriate CEQA approach for a statewide agency.

Comment 3.a.

3. CEC Staff analysis

    a. *Why did a consultant, rather than the CEC's own air expert, review this MEC petition?*
        i. *Did the CEC air expert review the results? Did that expert agree with this approach and these conclusions? Where is the written record of this?*
        ii. *Community members wanting to speak with the CEC air consultant were told that he was unavailable until the CEC workshop.*

Meanwhile, it was apparent the applicant has had regular access to the consultant. We believe it is unfair for community members to be denied equal access with the applicant and we ask that this be redressed, in part, by scheduling an evidentiary hearing on this permit amendment.

Response
See Topic 7. response.

Comment 3.b.

b. The margin of safety inherent in the proposed modification is inadequate to protect the community. For example, impacts of 97% of the health-based standard do not give an adequate margin of safety, particularly given the modeling uncertainties, which have not been acknowledged in the staff report or in the workshop.

Response
Please see Topic 1. response.

Comment 3.c.i.

c. Impacts from air toxics, such as acrolein, were stated by the CEC air consultant to have not been considered in the analysis performed to date. Furthermore, no review of the testimony from the original air hearing was performed, including relevant testimony on start-up emissions and health effects concluding that health levels would be exceeded, even with the required oxidation catalyst (see testimony prepared by Steve Radis).
    i. These impacts need to be considered and discussed in an evidentiary hearing

Response
See Topic 3. and Topic 6. responses.

Comment 3.c.ii.

ii. Since this amendment was initiated by the applicant (Calpine) due to new information from their start-up emissions from similar plants, has the CEC reviewed this detailed data?

Response
As noted at the workshop and as presented in the Staff Analysis, staff obtained information from Calpine for similar power plants (Hermiston, Sutter, etc.) that we used in our analysis of whether the start-up and commissioning emission limits being requested were reasonable. Staff also reviewed past similar amendment requests before determining that the emission limit requests were reasonable and prudent. Neither Staff nor the BAAQMD, based on their preliminary decision, considers it reasonable or prudent to retain short-term commissioning and startup/shutdown emission limits that will be exceeded and cause violations.

Comment 3.c.iii.

iii. Were air toxics included as part of the data reviewed by the CEC?

Response
Please see Topic 2. response.

Comment 3.c.iv.

iv. The community and other interested parties request an opportunity to review and comment on start-up emissions data provided by Calpine for this permit amendment.

Response
The startup emissions data have been posted on the Commission's website for public review. Comments may be made at the Business Meeting/hearing on March 16, 2005.

Comment 3.d.i.

d. At the workshop, the CEC air consultant mentioned that there are several other power plants where this type of emission limit change has been made.

i. How many of those plants are located in similar proximity to residences and businesses with similar meteorological conditions (eg: with routine air inversions)?

Response
This question is not pertinent to the Metcalf analysis, which has to stand on its own merits. However, staff presents the following comparison and notations to show that the Metcalf case is in no way a special case and has not received consideration different than other siting cases.

The following four cases located in populated areas (residences and businesses), in most if not all cases more populated than the immediate area surrounding the Metcalf site, have the following comparable permitted short-term emission limits.

- Mountainview startup NOx limit – 320 lbs/hour maximum number of hours at this rate are undefined (Metcalf 480 lbs/event)
- Mountainview commissioning NOx limit – no short term limits (Metcalf has short-term limits)
- Palomar commissioning NOx limit – 900 lbs/hour (Metcalf 381.2lbs/hour)
- Palomar commissioning CO limit – 4,000 lbs/hour and 96,000 lbs/day (Metcalf 5,000 lbs/hour and 20,000 lbs/day)
- Morro Bay commissioning CO and NOx limits - no short-term limits, emissions accrue towards quarterly limits (Metcalf has short-term limits)
- Morro Bay Startup NOx Limit - 620 lbs/hour with 4 hour limit (Metcalf 480 lbs per event where event is limited to six hours)

- Morro Bay Startup CO limit - 4,980 lbs/hour and overall daily limit including startups of 10,652.8 lbs (Metcalf 5,028 lbs/event with event limit of 6 hours and overall daily limit 7,891.1 lbs/day)
- Contra Costa Commissioning NOx limit - 400 lbs/hour and 8,400 lbs/day (Metcalf 381.2 lbs/hour and 4,805 lbs/day)
- Contra Costa Startup NOx limit - 452 lbs/event (Metcalf 480 lbs/event)

It should also be noted that many other power plants have no specific hourly or event limits for commissioning or startup at all (for some or all pollutants), but may just include those emissions in maximum daily, quarterly or annual emission limits. This shows that the short-term emission limit request situation at Metcalf is not unique nor extreme, and similar short-term limits have been approved previously at other similarly populated locations.

Comment 3.d.ii.

ii. Obviously the applicant has known for some time of the issues they are requesting be addressed in this permit amendment. The fact the applicant waited to bring this request forward so close to their desired start-up time should not be used to bully the CEC into acting hastily on this matter. Legitimate community concerns need to be fully addressed, including holding an evidentiary hearing.

Response
Staff are satisfied that the petitioner provided sufficient time for the review and analysis of its amendment request prior to the scheduled commissioning activities.

Comment 3.e.i.

e. Why are the hourly emission limits being deleted?
i. Why is a 6-hour period being recommended for defining cold start-up emissions? This would allow dilution of the actual emissions over 6 times longer than the former 1 hour time period, thus effectively raising the emission limits by 600%.

Response
The six-hour duration has been recommended as it provides the potential range of time needed to complete a cold startup. Staff has reviewed data that has shown cold startups to last approximately 5 hours, so adding one more hour to the definition of a cold start period provides a reasonable safety margin. Staff's modeling analysis addresses the potential increase in emissions by incorporating the worst-case assumption that the entire cold start event emissions will occur in one hour even through a cold startup will require more than one hour to complete.

Comment 3.f.

f. Given its proximity to MEC, the current monitoring data now being collected in the affected community is most appropriate to be used in the analysis of maximum impacts. The applicant (Calpine) has submitted this

data to the City of San Jose and has represented the data as accurate and valid.

Response
Please see Topic 3. response.

Comment 3.g.

g. The CEC used air data in their analysis which differs from that used in the original permit. This is inappropriate. We understand this differs from the approach the BAAQMD used. Again, this discrepancy should be available for examination in an evidentiary hearing.

Response
Please see Topic 3.b. response.

Comment 3.h.

h. The piecemeal nature of CEC permit amendments for MEC has severely hampered effective public participation and is contrary to CEQA prohibitions against permitting occurring in a piecemeal fashion.

Response
Please see Topic 9. response.

Comment 4.

4. Since the start-up data on which the proposed amendment was based is not forthcoming or non existent, or may be difficult to generalize, it is mandatory that the COC's be amended to require source testing during startup periods. This testing should include cold and warm startups at various load levels, e.g, 25, 50, 75, and 100%, consistent with the expected use of a merchant plant. If the source testing shows a large deviation above the predicted performance, then additional mitigation must be determined.

Response
Please see Air Quality Topic 2. response.

Comments from Mr. Steven Nelson, San Jose

Comment 1

1) As this is a substantial change to the project certified by the CEC in September, 2001 the commission should hold a public hearing so all issues regarding this change are thoroughly examined.

Response
See Topic 6. response.

Comment 2

2) Please explain why the CEC did not examine the data from the local air monitoring station in Los Paseos Park, approximately one mile from the project site.

Response
Please see Topic 3. response.

Comment 3

3) The December 2004 data from the monitoring station in Los Paseos Park shows on December 17, 2004 at 1300 a one hour reading of 175 ppb of NO2. Using the EPA conversion calculator on their web site shows 175 ppb to be 334 ug/m3. If this ambient level is used in calculating the maximum one hour NO2 impact for startup we have 187.9 + 334 = 521.9 ug/m3, which is over the California state NO2 one hour standard of 470 ug/m3. For commissioning we have 192.8 + 334 = 526.8 ug/m3 for the one hour NO2 impact, which is again over the California state one hour standard for NO2.

Response
Please see Topic 1. and Topic 3. responses.

Comment 4

4) Please explain why the CO ambient levels used in the September 2001 decision were not used in the CEC's analysis of Calpine's amendment to calculate the maximum impact.

Response
Please see Topic 3. response.

Comment 5

5) Please explain why toxic air contaminants were not analyzed. The public has shown great concern over startup emissions. Please explain how the Commission will ensure that contaminants such as Acrolein do not pose a health risk during startup. Please consider adding a condition for source testing at various levels of startup to

determine the health risk of toxic air contaminants.

Response
Please see Topic 2. response.

Comment 6

6) The CEC should wait until BAAQMD has completed its analysis before this issue goes before the CEC Commissioners. As the schedule stands now, the CEC Commissioners will rule on this issue before BAAQMD's public comment period has closed.

Response
See Topic 7. response.

Comment 7

7) Please explain why the CEC has not resolved the conflicting testimony in the record regarding PM10 emission rates. Calpine testified that adding an oxidation catalyst would increase the PM10 emission rates but this increase has never been addressed by the CEC.

Response
Please see Topic 4.c. response.

Comment 8

8) There appears to be a conflict between the CEC and BAAQMD regarding the sulfur content of the natural gas. Please explain how much sulfur content will be allowed.

Response
Please see Topic 4.a. response.

Comments from Mr. Issa Ajlouny, San Jose

Comment 1

1. In data request 17 from the CEC it stated:

> **Data Request**
>
> 17 Please provide all available ambient air quality monitoring data from the MEC project vicinity in raw format for all available pollutants including, but not limited to CO, NO_2 and PM_{10}.
>
> *Response: MEC, LLC objects to this request as argumentative, irrelevant, and redundant because the Commission Decision in this case determined that the air quality monitoring data used in the certification proceeding is representative of the MEC project site, and the monitoring data used to support the amendment is consistent with that previously approved by the Commission. MEC, LLC further objects to this request as burdensome.*

In the work shop you held in San Jose a couple of weeks ago it was stated that the ambient air numbers used in the modeling was different then what was used in the Commission Decision. As you can see the applicant is recklessly coming out with numbers to used to what ever suits them best. If the original ambient air numbers were used then the modeling emissions would be higher the what was given to us from the applicant in the work shop. This point needs to be addressed and not ignored like it was in the work shop.

Response

Please see Topic 3. response.

Comment 2

2. Sulfur Dioxide (SO2) in the original decision was set to .2 grains per 100 scf. With this change the BAAQMD has changed it to 1.0 grains per 100 scf and is not consistent with the CEC decision. This point also needs to be addressed and not ignored like it was in the work shop.

Response

Please see Topic 4.a. response.

Comment 3

3. I feel because of all the misinformation on air emissions on MEC it would be in the great interest to the community that some source testing to be done to verify the calculation numbers used.

Response

The project is already required to perform a number of source tests and requires continuous emission monitoring for NOx and CO emissions during all operations. The comment is not specific enough to know what kind of source testing is being referred to; however, if startup event air toxics testing is the subject of this comment then that subject has been addressed in the Topic 2 response.

Comment 4

4. BAAQMD said in the work shop they were going to use the original ambient air numbers from the Commission Decision and yet the CEC staff has refused.

Response

Please see Topic 3. response.

Staff would also like to note that BAAQMD staff did not state at the workshop that they were going to use the original ambient data, but that they were considering using it. BAAQMD uses their own evaluation procedures and conducts their own separate modeling analyses. Their latest analysis used ambient data from 1999 through 2003, while staff's used ambient data from 2000 to 2003. This is the only difference. BAAQMD would have had to use older ambient data in its original PDOC/FDOC evaluation completed in 2000, so they have also adjusted their background years evaluated from that evaluation to their present evaluation.

Comment 5

5. The last point I would like to bring to the Commission is it makes me real curious on how Joe Loyer was aggressive in getting to the bottom of the amendment and how it was calculated and just when he sends out a number of data request that the applicant did not want to answer then Joe was pulled off MEC. Assigning a consultant who has a great interest in pleasing who hired them makes it real easy for this amendment not to get the close attention it deserves. You need to remember that MEC is in a neighborhood and just because licensed it does mean the CEC should be careless and disregard our concerns as it appeared in the work shop for this.

Response

See Topic 7. response.

Comments from Mr. Michael E. Boyd – President, CARE

Comment 1

The Metcalf Energy center is indeed a unique siting case. The members of the public who spent thousands of hours of their personal time to prevent significant impacts to their lives are now having their hard fought conditions of certification swept aside by a piecemeal amendment process that does not allow full public participation. Without a hearing or an opportunity to present their evidence and experts to the Committee these new proposed amendments will produce a doubling of NOx, CO, and POC emission limits during steam turbine cold startup and gas turbine combustor tuning activities, change the current CO limits during commissioning from 930 lb/hr to 5,000 lb/hr and from 11,498 lb/day to 20,000 lb/day; and violate the 8-hour Co standard when the EIR and FDOC CO background levels are utilized. Eight of the participants in the February 23, 2005 Amendment workshop have formally requested an evidentiary hearing on this amendment and regardless of the burden to the commission the citizens who participated in the siting case deserve their hearing to present the evidence that staff is refusing to consider. Besides the obvious piecemeal destruction of the environmental safeguards that the original decision had installed to protect the local residents the current amendment process does not allow independent scrutiny of the proposed conditions of certification by qualified experts who are not controlled by the Commission or the Applicant. The summary to the Presiding Members Proposed Decision provides this description of the public's interest in the siting of the Metcalf Energy Center:

> *"Regarding the public participation aspects of this case, the hearing process had 34 formal party intervenors, including two municipalities, the developer of an adjacent campus-style industrial park, and representatives of neighborhood community organizations. The community members were not represented by legal counsel, yet many of such parties spent hundreds of hours on hearings and probably as many in preparation for such. As a matter of law and policy, the Commission has encouraged such participation. However, in circumstances such as were presented by this case, I found the burden on these parties to be extraordinary. I believe in complex cases such as this, the public would be better served by a less formalistic procedure. Recent changes in statute and proposed changes in regulations will permit flexibility in this regard, thus responding to the circumstances of each unique case." (Summary of Presiding members proposed decision page 1 June 15, 2001)*

At the February 23rd, 2005 workshop for the amendment citizens offered current monitoring data to commission staff that was provided by the applicant that demonstrates a violation of the 1 hour NO_2 standard will occur with the amendment. Participants also provided evidence that the project would in fact violate the 8- hour CO standard if the background values contained in the Final Decision, the functional EIR and the values in the project's BAAQMD FDOC were utilized. Commission staff refuses to go back and look at the evidence in the original decision that demonstrates a 2 pound per hour increase in PM-10 emissions because of the installation of the CO catalyst, which results in an increase of PM10 over the 100 tons/year thereby requiring the

applicant to purchase additional Emission Reduction Credits (ERCs) for PM10 impacts pursuant to the federal Clean Air Act (CAA). Further amendments will be necessary that will continue to erode the environmental safeguards in the original decision such as the fuel sulfur content limit of .2 grains per 100 scf that will need to be amended. Additionally the MEC has decided, based upon their commissioning experience with the Los Medanos Energy Center and Delta Energy Center that the NOx mass emission limits for the first year of operation can be reduced from 185 tons per year to 150 tons per year resulting in a reduction in offsets of 40.25 tons of POC per year. Imagine doubling your NOx and CO emissions during startup and shutdown and then asking for a refund of ERC's based on the Los Medanos and Delta Projects that have violated their conditions of certification over 70 times in the last several years. These two projects were the subject of a $300,000 civil penalty assessed by the BAAQMD for their consistent violations of their NOx, CO and ammonia slip limits. Clearly there are several reasons to provide an evidentiary hearing in this matter.

Response
See Topic 3., 4.b.,6., and 9. responses.

Comment 2

One hour NO2 violation

Calpine has provided members of the public with monitoring data from the new station that is less than a mile away from the projects site. Denise [sic] Jang of the BAAQMD has promised to include the data in his analysis for the amendment. Energy Commission Staff's representative refused to analyze the data in the amendment analysis. If the commission refuses to look at the data it should wait for the release of the BAAQMD more comprehensive review before approving this amendment. The BAAQMD will not be releasing its decision until after the Commission considers the adoption of the amendment. It is reasonable to wait before the BAAQMD releases its approval for the CEC to act on the amendment considering the controversy that exists over the project and the amendment. There seems to be a disagreement over the validity of the data and perhaps this should be a subject of an evidentiary hearing on this matter.

Response
Please see Topic 3. response.

Staff would also like to note that Mr. Jang did not make the commitment that he would use the new station ambient data in his analysis, but that BAAQMD staff would review it. Mr. Jang has reiterated to staff that they cannot use that data since "since the station has not been certified". Additionally, BAAQMD had released their preliminary evaluation already at the time of the workshop, and a critical review of that evaluation would not find it to be a more comprehensive review than staff's amendment analysis. Staff's analysis covered some topics and modeling results not discussed by BAAQMD in its analysis and the reverse is also true, but each analysis is complete for its required purposes. Additionally, staff does not believe that the BAAQMD's final analysis will be substantially different that the preliminary analysis in scope.

Comment 3

8- Hour CO violation

The amendment list Background for CO in the Project area as 7,811 ug/m^3 notice these are the applicants commissioning results not an independent agency.

Table 3
Applicant Commissioning Modeling Results

Pollutant	Averaging Period	Project Impact (µg/m^3)	Background Concentration (µg/m^3) [a]	Total Impact (µg/m^3)	Limiting Standard (µg/m^3)	Type of Standard	Percent of Standard (%)
NO_2 [b]	1-Hour	192.8	214	407	470	CAAQS	87
CO	1-Hour	11,106	11,125	22,231	23,000	CAAQS	97
	8-Hour	1,926	7,811	9,755	10,000	CAAQS	98

Source: MEC 2004a, 2005a.
Note(s):
a. Background concentration values have been updated to reflect the highest monitored concentrations from the San Jose monitoring stations for 2000, 2001, and 2003. The San Jose 4th Street station was shut down in early 2002 and the Jackson Street station did not start up until late 2002, so data for 2002 are incomplete.
b. NOx converted to NO_2 using ISC_OLM and concurrent ozone data from San Jose.

The Final Commission Decision for the Metcalf Energy center lists background for 8 hour CO as 8,716 on page 127

AIR QUALITY Table 6
ISC Modeling Results

Pollutant	Averaging Time	Facility Maximum Impact (µg/m^3)	Maximum Background (µg/m^3)	Maximum Total Impacts (µg/m^3)	State Limiting Standard (µg/m^3)	Federal Limiting Standard (µg/m^3)	Percent of Standard (%)
NO_2	1-hour	188	245	433	470		92.1
	Annual	0.67	51	51.7	-	100	51.7
CO	1-hour	650.3	11500	12150	23000	40000	53
	8-hour	549	8167	8716	10000	10000	87.1
PM10	24-hour	9.3	114.4	123.7	50	150	247.4
	Annual	1.1	25.9	27.0	30	-	90
SO_2	1-hour	33.4	107	140.4	650	-	21.6
	24-hour	0.6	24	24.6	109	365	22.6
	Annual	0.06	0	0.1	-	80	0

Source: Ex. 7, p. 44.

The FDOC from the BAAQMD lists the 8 hour CO Background as 8,716

Table 6
California and National Ambient Air Quality Standards (AAQS) and Ambient Air Quality Levels from the Proposed MEC (µg/m^3)

Pollutant	Averaging Time	Maximum Background	Maximum Project impact	Maximum Project impact plus maximum background	California Standards	National Standards
NO_2	1-hour	245	188	433	470	---
CO	8-hour	8167	549	8716	10,000	10,000
PM_{10}	24-hour annual GM[1] annual AM[2]	114.4 25 29	9.3 1.1 1.1	123.7 26.1 30.1	50[3] - 30[3]	150 - 50

[1]GM-geometric mean [2]AM-arithmetic mean

When the background level for 8-hour CO from the FDOC and the Final Decision of 8,716 ug/m^3 (CEC Table 6 and BAAQMD 6 above) are used in conjunction with the 1,916 ug/m^3 in the applicant commissioning estimates table 3 above a new violation of the 8-Hour CO standard occurs 10,632 ug/m3. Note the 1 hour background was also changed.

Response
Please see Topic 3.b. response.

It should be also be noted that BAAQMD did not actually provide a CO 8-hour background concentration in their modeling assessment provided with their preliminary decision document for this amendment. However, BAAQMD would have determined the same 8-hour CO background concentration as staff (i.e. 7.03 ppm/8,711 ug/m^3), as both determinations would be defined by the same year 2000 peak value.

Comment 4

Unanswered Data Requests - many of the Joe Loyer's (sic) data requests remain unanswered but staff is still recommending approval? *Something isn't right. WE also need the data requests fully answered for our evaluation.*

Response
Data requests were answered to staff's satisfaction.

Comment 5

Data Requests 2 through 5 - Calpine reduction in commissioning hours from 300 to 50

In response to data requests 2 through five Calpine said it was withdrawing its request to shorten the number of hours to complete commissioning.

> *Response: MEC, LLC objects to Data Requests 2,3,4, and 5 because the information requested is irrelevant to the requested amendment and is not reasonably necessary to make any decision on the amendment. Further, MEC, LLC further objects specifically to Data Request 4 because to the extent that the request is seeking commercial guarantees, vendor quotes, actual costs, and estimated costs, and without admitting that the requested information is relevant, MEC, LLC objects on the basis that the information requested contains confidential and proprietary business information or other trade secrets that are not relevant to the Commission's environmental review of the project.*
>
> *Due to the objections cited above , MEC, LLC is withdrawing the request to modify the maximum allowable operating hours from 300 hours to 50 hours without installation of catalytic controls. Since MEC, LLC is withdrawing the request to modify the maximum allowable operating hours, we are not submitting any additional information to respond to Data Request items 2 through 5.*

—— *(Calpine answer to data request 2-5)*

This issue is important because Calpine is asking for a refund on NOx ERC's which were provided by POC ERC's of 40.35 tons per year of POC Emission Reduction credits. Why was Will Walters still talking about some new methods to reduce

commissioning hours at the workshop when Calpine refused to answer staffs data requests on the new commissioning procedures and has withdrawn its request? The BAAQMD permit still contains this request to limit startup hours to 50 hours.

Response
The petitioner withdrew their request to reduce the commissioning period, and thus, the data requests became moot. However, the petitioner has not wavered in their commitment to reduce their commissioning emissions as noted in the staff assessment. The project owner, in their January 15th letter to area residents and their January 19th letter to the CEC commits to using a compressed air pipe cleaning technique (aka "Air Blows") that will reduce the number of turbine firing hours otherwise necessary for steam blows prior to the installation of the emission control technology. The elimination of the steam blow events will reduce commissioning period emissions.

Staff is willing to accept the lower emission limit for the commissioning year for two reasons: First, as noted above, Calpine has made a specific commitment to reduce commissioning emissions. Second, and most importantly, the NOx emissions will be verified through CEMS data so compliance with this lower limit can be assured, even if it requires the facility to shutdown for a period of time to meet the revised limit. The petitioner is aware of this risk.

Comment 6

Data Request 11 *PSD permit- We need Email to the BAAQMD from Calpine dated 12-23-04 and the CEC submission of January 7 on the PSD evaluation to complete our assessment of this item.*

Data Request

11 Please discuss how exceeding the significance thresholds of Table 11 of the amendment request does not require additional PSD analysis including ambient air quality monitoring as required in Rule 2-2-414.3.

Response: This issue was addressed in an e-mail to the BAAQMD on Dec. 23, 2004, and in a submission to the CEC January 7, 2005.

Response
Staff has received copies of both documents and posted them on the Commission's website.

Comment 7

Data Request 17

Data Request

17 Please provide all available ambient air quality monitoring data from the MEC project vicinity in raw format for all available pollutants including, but not limited to CO, NO_2 and PM_{10}.

Response: MEC, LLC objects to this request as argumentative, irrelevant, and redundant because the Commission Decision in this case determined that the air quality monitoring data used in the certification proceeding is representative of the MEC project site, and the monitoring data used to support the amendment is consistent with that previously approved by the Commission. MEC, LLC further objects to this request as burdensome.

Why isn't this data being used by CEC when it was requested?

Response
Please see Topic 3.response.

Comment 8

The CEC Final decision on the Metcalf Energy Center States that BACT for SO2 is .2 grains per 100 scf.

SULFUR DIOXIDE (SO2). *The MEC's SO_2 emissions will be controlled by burning natural gas, which typically contains only traces of sulfur. The emissions from the project are expected to be very small, and do not require the use of any additional post-combustion SO_2 control equipment. The use of natural gas with a sulfur content specification of 0.20 grains per 100 scf meets BACT. (Ex. 141, p. 16. Final decision page 132)*

The original FDOC also states that fuel sulfur will contains only .2 grains per 100scf and the Emissions for SO2 and PM-10 are calculated on this fuel sulfur limit. The new BAAQMD permit without a new analysis will allow a fuel sulfur limit of 1 grain per 100 scf. Condition 13

Response
Please see Topic 4.a. response.

Comment 9

BAAQMD new Permit
The BAAQMD is using not using the 8-hour Commissioning impact in its Commissioning Maximum Impact in the table below for the PSD analysis

TABLE III
Maximum predicted ambient impacts of proposed project (µg/m3)
[Overall maximum in bold type]

Pollutant	Averaging Time	Commissioning Maximum Impact	Startup Maximum Impact	Significant Air Quality Impact Level
NO_2	1-hour	193	188	19
CO	1-hour	11,073	10,882	2000
	8-hour	483	495	500

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Table 3
Applicant Commissioning Modeling Results

Pollutant	Averaging Period	Project Impact (µg/m³)	Background Concentration (µg/m³) [a]	Total Impact (µg/m³)	Limiting Standard (µg/m³)	Type of Standard	Percent of Standard (%)
NO_2 [b]	1-Hour	192.8	214	407	470	CAAQS	87
CO	1-Hour	11,106	11,125	22,231	23,000	CAAQS	97
	8-Hour	1,926	7,811	9,755	10,000	CAAQS	98

Source: MEC 2004a, 2005a.
Note(s):
a. Background concentration values have been updated to reflect the highest monitored concentrations from the San Jose monitoring stations for 2000, 2001, and 2003. The San Jose 4th Street station was shut down in early 2002 and the Jackson Street station did not start up until late 2002, so data for 2002 are incomplete.
b. NOx converted to NO_2 using ISC_OLM and concurrent ozone data from San Jose.

Commissioning Modeling results identify that 8-hour CO impacts will be 1,926 ug/m^3 BAAQMD's permit PSD evaluation on page 4 is incorrect because it states Commissioning impacts are only 483 ug/m3

Response
This comment questions the BAAQMD modeling analysis and needs to be directed to BAAQMD for their response. However, staff did talk to Glen Long at BAAQMD to confirm that the modeling procedures used met BAAQMD PSD modeling requirements. The modeling mentioned above was only required by Staff for an "ultra" worst-case modeling assessment and that analysis apparently is not required for or relevant to the BAAQMD PSD modeling assessment.

Also please see Topic 1. and 3. responses.

Comments from Mr. Robert Sarvey, Tracy

Comment 1 (Request for Evidentiary hearing on proposed amendment)

The original licensing for the Metcalf Energy Center took 30 months to analyze and 19 days of evidentiary hearings to arrive at a decision that protects the public health and ensures the maintenance of Federal Air Quality Standards. On February 9, 2005 staff released its analysis of the proposed amendments impacts and on February 23, 2005 staff presented its findings in a workshop in Coyote that revealed that this amendment has higher air quality impacts than any impacts analyzed in the original proceeding. The CO emission limits from commissioning have increased CO emissions from 930 pounds per hour to 5,000 pounds per hour. This increase translates into a maximum impact to 8 hour CO levels of 1,926 μg/m3. When added to the background limits for CO from the original decision for the Metcalf Energy Center and the original FDOC from the BAAQMD of 8,167 μg/m3 a new violation of the 8-hour CO standard will occur. The applicant has proposed to change the background CO level for this amendment to purposely avoid this significant impact. This change should be the subject of an evidentiary hearing to provide proof that this change reflects actual local conditions at the site since CO impacts are a local phenomenon. The new monitoring station near the project site has been in operation since November of 2004 and the information it provided was the subject of Data Request 17 to which the applicant objected. The applicant's answer below states that the original monitoring data form the Commission Decision used in the certification of this facility is representative of the project site. If the commission agrees with this assessment then the original CO background level of 8,167 μg/m3 should be used and the resulting 8-hour CO violation should be mitigated.

Response
Regarding Data Requests 2 through 5, please see response to Issa Ajlouny's Comment 5.

Also please see the Topic 1. discussion of modeling conservatism and the Topic 3. discussion of the derivation of the ambient background used in the analysis.

Comment 2

AMBIENT AIR QUALITY MONITORING
Background
MEC-LLC is currently monitoring the ambient air quality near the MEC project site. However, MEC-LLC has been actively monitoring for only a short while, approximately early November. The background ambient air quality being used in the petition is from the San Jose area and may not represent the MEC project site. There is clearly too little monitoring data available from the MEC project site to be used to represent the area ambient air quality. However, it is important to scrutinize what local monitoring data is available to ensure that the representative ambient air quality data is reasonable. Therefore, staff requests that MEC-LLC adequately respond to Data Request-17.

Data Request

17 Please provide all available ambient air quality monitoring data from the MEC project vicinity in raw format for all available pollutants including,

but not limited to CO, NO_2 and PM_{10}.

Response: MEC, LLC objects to this request as argumentative, irrelevant, and redundant because the Commission Decision in this case determined that the air quality monitoring data used in the certification proceeding is representative of the MEC project site, and the monitoring data used to support the amendment is consistent with that previously approved by the Commission. MEC, LLC further objects to this request as burdensome.

At the workshop on February 23 citizens from the project area presented the new monitoring data. The new data reveals that NO_2 levels in the project area are higher than the original licensing data had indicated. The data indicated that combined with the modeling impact a new 1-hour NO2 violation will occur. Clearly this conflicting information should be the subject of evidentiary scrutiny to verify the validity of the new background monitoring data used by the applicant as reflected in the background comments section of staffs data request 17.

Response
Please see Air Quality Topic 3. response.

Comment 3 – Other Data Request Responses

Several data requests remain unanswered and this information is needed for the public to fully assess this project. Data requests 2 through5 related to Calpine's reduction in commissioning hours remains outstanding. Calpine in its answers to these data requests has indicated that it will eliminate its request to shorten commissioning time but at the February 23 workshop Staff indicated that the applicant has not withdrawn its request. Data request 11 asks for an explanation of how Calpine will comply with the PSD requirements. Calpine's answer was that this has been explained in an E-mail to the BAAQMD on December 23, 2004 and a submission to the CEC on January 7, 2005. Neither of these documents have been made available to the public and the public cannot fully assess the PSD impacts of this facility without them. Calpine provides data from various power plants to justify its new commissioning and operating limits the information from these various locations should be the subject of evidentiary scrutiny.

Response
See response to Issa Ajlouny's Comment 5.

Comment 4 – Fuel Sulfur Content and SO_2/PM10 Emissions

The new permit with the BAAQMD contains a provision to increase fuel sulfur content to 1 grams per 100scf the FDOC and the final decision limit fuel sulfur content to .2 grains per 100scf and no evaluation of SO2 and PM10 emissions increases from the new fuel sulfur content limit has been conducted. The new amendment request is incomplete without this evaluation.

Response
Please see Air Quality Topic 4.a. response

METCALF ENERGY FACILITY (99-AFC-3C)
Amendment 1 – Petition to Amend Air Quality Conditions
Air Quality Staff Analysis
Addendum
Prepared by: William Walters, P.E.
March 9, 2005

Reason for Addendum

The staff analysis was published based on a draft version of the District's revised permit definitions and conditions. The District subsequently made a few editorial revisions to the definitions and conditions in their preliminary decision document (BAAQMD 2005). This addendum addresses the editorial revisions to the "Combustor Tuning Activities" definition and Conditions of Certification (CoCs) **AQ-16**, **AQ-21**, **AQ-56**, and **AQ-57**. Additionally, communication with BAAQMD staff on March 8th indicates that the only change they plan to make to their preliminary decision conditions is to delete an addition they made to District Condition 13, which does not affect this addendum since that addition was not part of the draft version used in the original staff analysis.

Addendum Analysis/Conclusion

The revisions to the conditions are non-substantive and do not affect the findings of the amendment analysis. Therefore, staff recommends the following appended revision to the Definitions and CoCs (all other Conditions of Certification are still recommended to be revised as shown in the February 9, 2005 staff analysis for this amendment request):

Newly deleted text is shown in double ~~strikethrough~~, and newly added text is shown in **bold and double underlined**. The original deletions and additions remain, as shown in the amendment analysis, in single strikethrough and bold and single underline, respectively.

Revised Definitions and Conditions of Certification

Combustor Tuning Activities: Any testing, adjustment, tuning, and calibration activities recommended by the gas turbine manufacturer to insure safe and reliable steady-state operation of the gas turbines following replacement of the combustor components, during seasonal tuning events, or at other times when recommended by the turbine manufacturer or as necessary to maintain low emissions performance. This includes, but is not limited to, adjusting the amount of fuel distributed between the combustion turbine's staged fuel systems to simultaneously minimize NOx and CO production while minimizing combustor dynamics and ensuring combustor stability.

AQ-16 The combined cumulative heat input rate for the Gas Turbines (S-1 & S-3) and the HRSGs (S-2 & S-4) shall not exceed 35,274,060 MM BTU **(HHV)** per year. (Offsets)

Verification: As part of the Air Quality monthly Reports, the owner/operator shall include information on the date and time when the ~~daily~~ **annual** fuel consumption exceeded this ~~daily~~ **annual** limit.

AQ-21 The regulated air pollutant mass emission rates from each of the Gas Turbines (S-1 and S-3) during a start-up**, combustor tuning period,** or a shutdown ~~**or during a combustor tuning period**~~ shall not exceed the limits established below. (PSD)

	Start-Up (lb/start-up)	~~Start-~~ (lb/hr)	**Cold Startup or Combustor Tuning (lb/period)**	Shutdown (lb/shutdown)
Oxides of Nitrogen (as NO_2)	240	~~80~~	**480**	~~18~~**80**
Carbon Monoxide (CO)	2,514	~~902~~	**5,028**	~~43.8~~**902**
Precursor Organic Compounds (as CH_4)	48	~~16~~	**96**	~~5~~**16**

Verification: As part of the semiannual Air Quality Reports, the owner/operator shall indicate the date, time, and duration of any violation of this Condition. The owner/operator shall also include quantitative information on the severity of the violation.

AQ-56 The total number of hours during which the Gas Turbines (S-1 and S-3) may be operated in cold startup mode or may undergo combustor tuning shall not exceed 30 hours per calendar year ~~total~~ for each Gas Turbine. (cumulative increase)

Verification: As part of the annual Air Quality Report, the project owner shall indicate the date, time, and duration of any violation of this Condition.

AQ-57 To demonstrate compliance with condition AQ-56, the owner/operator shall record the start time, end time and duration of each Gas Turbine Cold Startup and each Combustor Tuning Period. On an annual basis, the owner/operator shall record the total number of hours during which each gas turbine (S-1 and S-3) ~~the Gas Turbines~~ operated in cold startup mode or combustor tuning mode for each calendar year. (cumulative increase)

Verification: During site inspection, the owner/operator shall make all records and reports available to the District, California Air Resources Board, and CPM.

Reference

Bay Area Air Quality Management District (BAAQMD). 2005. Preliminary Decision for Application 11251, Metcalf Energy Center. February 15, 2005.